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## PATENT SPECIFICATION

**653,106**



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A1gx, A1r(22x : 27 : 100), A2h6.**

### COMPLETE SPECIFICATION.

#### **A Method and Apparatus for the Production of an Ornamental Welt, with an Imitation of a Sewn Seam on a Sole and other Lower Parts of Footwear having Rubber and similar Soles.**

We, BATA, národní podnik, a company organised and existing under the laws of Czechoslovakia, of Gottwaldov, formerly known as Zlín, Czechoslovakia, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates broadly to the manufacture of shoes and more particularly to a method for the production of an ornamental welt with an imitation of a sewn seam on a sole and other lower parts of footwear having rubber and similar soles, and to an apparatus for carrying out the new method.

An object of the present invention is to permit the manufacture of rubber ornamental welts with an imitation of sewing stitches on the same.

An imitation of sewn through stitches, e.g. on rubber soles, has been obtained hitherto in various ways, which however are all too complicated and moreover do not permit to obtain a perfect imitation of a welt sewn through stitches.

Thus, for instance, the United States Patent No. 2,093,523 describes a method of imitating sewing stitches in which a rubber welt having the same colour as the leather and secured to a shoe sole by means of a suitable cement, is provided on its surface with a groove in which strips of a rubber compound having the same colour as that of the leather are laid, the said strips having on their surface a narrow band of a white rubber compound interrupted at uniformly spaced intervals.

Another method in accordance with the same invention consists in assembling the welt of two strips of the same colour as that of the leather, and of an intermediate third strip of the same colour as the sewing yarn, this last mentioned strip being located be-

tween the first two strips and interrupted at regular intervals. 45

A still further method in accordance with the invention referred to consists in the insertion into a groove provided in a rubber welt, of a strip having the same colour as the sewing yarn and formed on its surface with uniformly spaced projections corresponding to apertures formed in another rubber strip which has the same colour as that of the leather and is laid over the surface of the composite welt in such a manner that the said projections extend through the apertures in the second strip beyond the level of the welt. 50

A perfect imitation of sewn through stitches and at the same time an easy manufacture of ornamental welts may be secured mainly by simplifying the manufacturing process. The method in accordance with the present invention permits to 55

secure full success in this respect. The essential features of the invention consists in placing on a rubber welt, which is still in a plastic condition, a rubber thread also in plastic condition and having the same colour, shape and thickness as the yarn to be imitated, the said thread being caused to adhere to the welt by means, for instance, of a profiled roller with concurrent shaping of the imitation of stitches, and then vulcanising the thread together with the welt which is supported e.g. on a rubber sole. This method of making an ornamental welt in accordance with the present invention permits continuous production, 60

using for this purpose preferably an extrusion press. Depending on the composition of the welt, two extrusion nozzles are usually used, one for the welt and the other for the yarn imitating rubber thread. Alternatively it may be of advantage to use an extrusion machine provided with a single nozzle for extruding a two coloured mixture. 65

[Pri]

An example of carrying out the method in accordance with the invention will be described with reference to the accompanying drawings, in which

5 Fig. 1 shows diagrammatically the working process for making an ornamental welt in accordance with the present invention; and

10 Fig. 2 is a detail view on a larger scale of the imitation of sewn through stitches on a welt.

Referring to the drawings, two rubber compounds having each the desired colour, e.g. one of them the colour of the leather  
15 and the other that of the sewing thread, are extruded concurrently at the same speed through two nozzles 1, 2 of an extrusion machine, the nozzles having a suitable shape to give the desired profile to the  
20 extruded material. The extruded material from the nozzle 1, which is in the form of a rubber thread 3 provided to imitate a sewing thread, is laid upon the material issuing from the nozzle 2, which is in the form of a band 4 adapted to imitate a leather welt, by means of centering rollers  
25 5, 6 which guide the thread 3 into the correct position on the band 4 at a uniform spacing from the edges thereof. From the  
30 rollers 5, 6 the band 4 with the thread 3 superposed thereon passes between pressure rollers 7, 8 which apply the thread 3 firmly to the welt band 4, causing them to adhere to one another. From the rollers  
35 7, 8 the band 4 with the thread 3 thereon passes over a guide roller 9 which equalises the tension in the part 10 of the rubber  
40 welt and is then directed under a toothed compression roller 11. The compression roller 11 operates to guide the welt 4, with the sewing yarn imitating threads adhering to the welt, and to cause the welt to be adhesively fastened by pressure to the edge of a sole 12, and on the other hand, by  
45 means of its teeth travelling over the face of the welt the said roller 11 forms at the same time indentations 14 in the rubber  
50 thread, if desired also on the surface of the welt, the said indentations being of assistance in giving an impression as if the welt were actually sewn through by means of  
stitches 13.

The process of manufacturing a welt with sewing stitch imitation, more particularly the process of laying a strip of rubber at the desired location on a base welt and/or conveying the welt to the toothed compression roller, is not limited to the constructional details as described and diagrammatically illustrated, since the construction shown does not exhaust all the possible embodiments of the method for the continuous production of ornamental welts with sewing stitch imitation in accordance with the present invention.

Having now particularly described the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In a method for the production of an ornamental welt with an imitation of a sewn seam on a sole and other lower parts of footwear having rubber and similar soles, the steps of placing in the desired position on a rubber welt, which is still in plastic condition, a rubber thread, also in plastic condition, and having the same colour, shape and thickness as the yarn to be imitated, causing the said rubber thread to adhere to the welt and vulcanising the said thread together with the said welt in the desired position on a shoe sole. 70

10 Fig. 2 is a detail view on a larger scale of the imitation of sewn through stitches on a welt.

15 Referring to the drawings, two rubber compounds having each the desired colour, e.g. one of them the colour of the leather and the other that of the sewing thread, are extruded concurrently at the same speed through two nozzles 1, 2 of an extrusion machine, the nozzles having a suitable shape to give the desired profile to the extruded material. The extruded material from the nozzle 1, which is in the form of a rubber thread 3 provided to imitate a sewing thread, is laid upon the material issuing from the nozzle 2, which is in the form of a band 4 adapted to imitate a leather welt, by means of centering rollers 5, 6 which guide the thread 3 into the correct position on the band 4 at a uniform spacing from the edges thereof. From the rollers 5, 6 the band 4 with the thread 3 superposed thereon passes between pressure rollers 7, 8 which apply the thread 3 firmly to the welt band 4, causing them to adhere to one another. From the rollers 7, 8 the band 4 with the thread 3 thereon passes over a guide roller 9 which equalises the tension in the part 10 of the rubber welt and is then directed under a toothed compression roller 11. The compression roller 11 operates to guide the welt 4, with the sewing yarn imitating threads adhering to the welt, and to cause the welt to be adhesively fastened by pressure to the edge of a sole 12, and on the other hand, by means of its teeth travelling over the face of the welt the said roller 11 forms at the same time indentations 14 in the rubber thread, if desired also on the surface of the welt, the said indentations being of assistance in giving an impression as if the welt were actually sewn through by means of stitches 13.

20 The process of manufacturing a welt with sewing stitch imitation, more particularly the process of laying a strip of rubber at the desired location on a base welt and/or conveying the welt to the toothed compression roller, is not limited to the constructional details as described and diagrammatically illustrated, since the construction shown does not exhaust all the possible embodiments of the method for the continuous production of ornamental welts with sewing stitch imitation in accordance with the present invention.

25 Having now particularly described the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

30 1. In a method for the production of an ornamental welt with an imitation of a sewn seam on a sole and other lower parts of footwear having rubber and similar soles, the steps of placing in the desired position on a rubber welt, which is still in plastic condition, a rubber thread, also in plastic condition, and having the same colour, shape and thickness as the yarn to be imitated, causing the said rubber thread to adhere to the welt and vulcanising the said thread together with the said welt in the desired position on a shoe sole. 70

35 2. A method as claimed in Claim 1, in which the yarn imitating rubber thread is caused to adhere to the rubber welt concurrently with the shaping of the said thread to imitate sewing stitches. 85

40 3. In a method for the production of an ornamental welt on a sole or other lower parts of footwear having rubber and similar soles, the steps of continuously extruding a base rubber welt and a rubber thread having the same colour, shape and thickness as the yarn to be imitated, straightening the rubber welt and the yarn imitating rubber thread, pressing together the rubber welt and the yarn imitating rubber thread, equalising the tension in the welt and thread, laying the welt together with the yarn imitating thread on a shoe sole, pressing the welt against the shoe sole and concurrently shaping the rubber thread to imitate sewing stitches. 90

45 4. In the method as claimed in Claim 3, the step of uniting the rubber welt and the yarn imitating rubber thread in the extruding nozzle itself. 105

50 5. A method as claimed in Claim 3, in which ornamental indentations are formed in the rubber welt concurrently with the shaping of the rubber thread to imitate sewing stitches. 110

55 6. An apparatus for the production of an ornamental welt on a sole or other lower parts of footwear having rubber and similar soles, comprising means for continuously extruding a base rubber welt and a yarn imitating rubber thread, means for straightening the welt and the thread, means for pressing together the rubber welt and the yarn imitating rubber thread, means for equalising the tension in the welt and yarn imitating thread, means for laying the welt and yarn imitating thread on a shoe sole, and means for pressing the welt against the shoe sole to cause it to adhere to the shoe sole and for concurrently shaping the thread to imitate sewing stitches. 115

60 7. An apparatus as claimed in Claim 6, 120

65 8. An apparatus as claimed in Claim 6, 125

70 9. An apparatus as claimed in Claim 6, 130

- in which pairs of rollers are provided for straightening the welt and the yarn imitating thread for pressing them together, and a guide roller for equalising the tension in the welt and yarn imitating thread.
- 5        8. An apparatus as claimed in Claim 6, in which a toothed pressure roller is provided for pressing the welt and yarn imitating thread against a shoe sole, shaping the thread to imitate sewing stitches and forming ornamental indentations in the welt.
- 10      9. The method for the production of an ornamental welt with an imitation of a

sewn seam on a sole and other lower parts of footwear having rubber and similar soles, substantially as described. 15

10. The apparatus for the production of an ornamental welt on a sole or other lower parts of footwear having rubber and similar soles, constructed, arranged and adapted to be operated substantially as described with reference to the accompanying drawing. 20

Dated this 2nd day of July, 1948.

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[This Drawing is a reproduction of the Original on a reduced scale.]

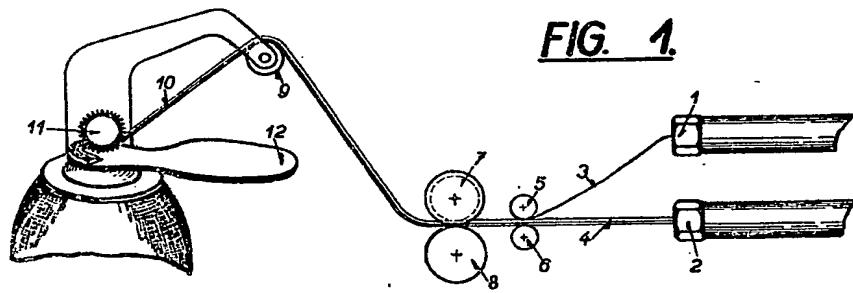


FIG. 1.

FIG. 2.

